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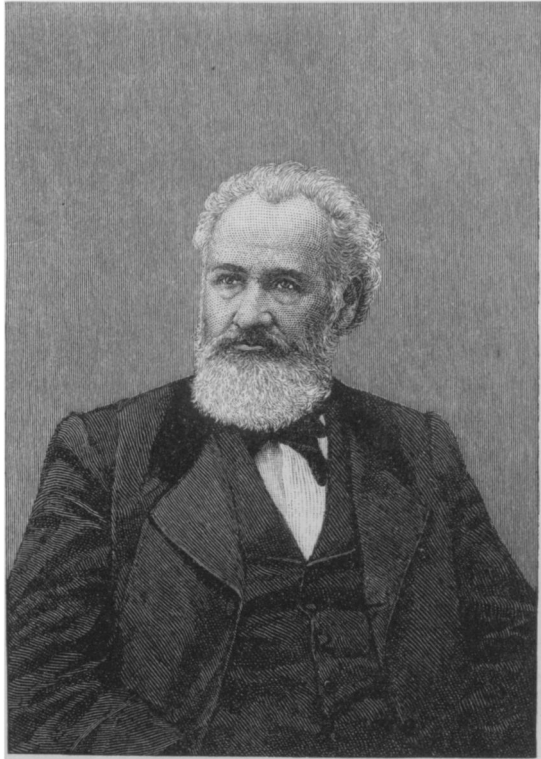
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THE TYPEWRITER; ITS GROWTH AND USES.

BY P. G. HUBERT, JR.

THE history of the typewriter resembles that of every other great labor saving invention in that, like the sewing machine and the locomotive, the perfected writing machine is the result of years of labor upon the part of more than one man, and has been brought to perfection by dint of hard work. As Dr. Lyman Abbott once said, it is to the pen what the sewing machine is to the needle. It has created a revolution, and although its business career does not date back much more than ten years, and it is in its infancy as compared with the sewing machine, there are not a few persons who place the two inventions side by side in future importance. To-day the Remington typewriter is found in nearly every prosperous business and professional office,—sometimes scores of them in the same office. Less than a decade ago people had to be argued into acknowledging its practical usefulness, and more than one hard-headed business man was found who “had no time to fool away upon a writing machine.” To-day the same hard-headed business man is very sure that he has no time to fool away upon a pen. With the aid of this little machine an operator can accomplish more correspondence in a day than half a dozen clerks can with the pen, and do better work. It is the great labor-saver of business life.

An invention of such vast present importance, and with a still greater future before it, must have an interesting history. Where did it come from, and to whom belongs the credit? The typewriter was foreshadowed generations ago, and here and there through the records of the Patent office in England, and later, in this country, may be found the first crude attempts at making a satisfactory writing machine. A little more than twenty years ago the principles upon which the perfected typewriter is built were first suggested; then came some years of experimenting, of disappointments, and finally, about ten



PORTRAIT OF PHILO REMINGTON.

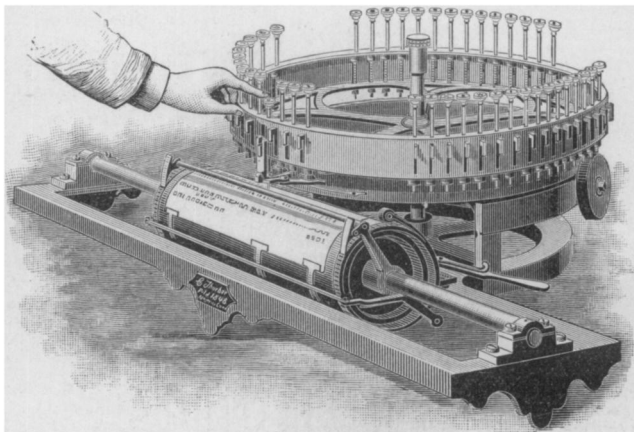
THE TYPEWRITER; ITS GROWTH AND USES.

years ago, the machine assumed such shape, thanks to the contributions of many bright minds, that it passed the experimental stage and became practical.

The archives of the British Patent Office show that the first patent upon a writing machine was granted on January 7th, 1714, to Henry Mill, a skilled engineer, who died about the year 1770.

No drawings accompanied the specification, so that we are unable to tell what kind of a machine Mill's was. The history of the first typewriter begins and ends with this specification. From the description it has been imagined that it was intended to print embossed characters for the use of blind people. And the next invention in the same field was a French device for stamping embossed letters upon paper, for the use of the blind, that appeared about 1784. Until 1841 there is no record in the English Patent Office of any other writing machines. But from that date a number of devices, all more or less impracticable, made their appearance, and since then more than a hundred inventions of writing machines have been patented in England, not one of which has done its work in a satisfactory manner. The Remington typewriter, an American invention, is used throughout England.

Our American records show that in 1843, Charles Thurber, of Worcester, Mass., took out a patent for a writing machine, followed by an improvement two years



THE FIRST TYPEWRITER.

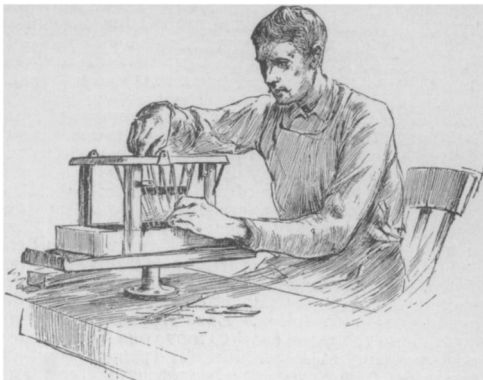
later. The Thurber machine wrote, but so slowly that it remained a curiosity and nothing more. It is preserved in the Boston office of Messrs. Wyckoff, Seamans & Benedict. The accompanying cut shows its operation. The keys are small steel rods, four inches long, with common types inserted in the lower end, and bearing buttons on the top with the corresponding letters marked on them. The keys are placed in a vertical position around the rim of a horizontal brass wheel, sixteen inches across, which turns about a central post, and each key-rod is surrounded by a spiral spring, which raises it after it has been pressed down upon the paper. The machine presents an extraordinary contrast with the compact and perfect Remington which stands beside it. Thurber died recently in Brooklyn.

Mr. A. Ely Beach, now one of the proprietors of the *Scientific American*, obtained a patent in 1856 for a machine intended to print embossed letters for the use of the blind. It was worthy of record because it covered a principle afterwards developed into success. All the printing was done at one point, the centre of a circle, and the machine was made with type-bars converging as the spokes of a wheel. Mr. Beach was followed by Dr. Samuel W. Francis, who adopted the piano-forte action and arranged his hammers, each with the face of a letter, in a circle, throwing them up as piano-hammers act, and each one striking at a common centre. A silk ribbon saturated with ink was made to pass under the paper very much as is now done, and was so adjusted as to move with each impression.

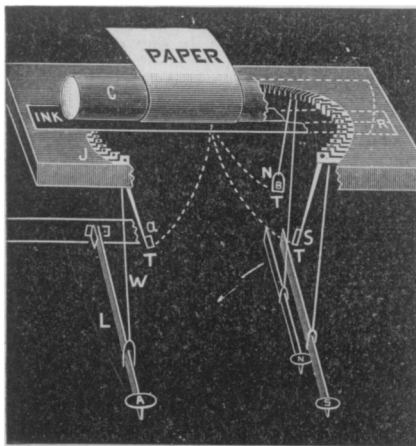
THE TYPEWRITER ; ITS GROWTH AND USES.

Besides these notable attempts at solving the problem, a number of early patents were issued to different people, among others one to Fairbanks, in 1848, and one to Oliver T. Eddy, of Baltimore, in 1850: and almost every year from these first attempts to the invention of 1867 is marked by some more or less clumsy attempt to reach the desired end.

In 1867 a writing machine, called the typewriter, was patented in Milwaukee, Wis., by C. Latham Sholes, Samuel W. Soule, and Carlos Glidden. Neither of the three had any idea of what had been done before in the same field, except that Mr. Sholes had seen an article in the *Scientific American*, copied from *London Engineering*, in which was described a writing machine called the "pterotype," invented by John Pratt, of Centre, Ala., but then residing near London, England. The *Scientific American* article was followed by the suggestion that whoever would make a successful writing machine would not only secure a fortune, but would confer a blessing upon mankind. Sholes and Soule were printers who had been engaged for some time in perfecting a machine for numbering the pages of blank books, and for printing serial numbers on bank notes. Mr. Glidden, who was a man of means, happened to be working at a patent plough in the machine shop frequented by Sholes and Soule. He took great interest in the paging machine. One day he



PUTTING IN CONNECTING-RODS AND LEVERS.



OUTLINE OF LEVERS AND RODS.

said to Sholes, "Why can't a machine be made that will write letters and words instead of simply figures?"

When the *Scientific American* article appeared Mr. Glidden showed it to Sholes; and Soule having joined them, the three went to work upon the invention. Soule suggested pivoted types set in a circle, and Sholes suggested the letter-spacing device. In September, 1867, the first machine was finished, and letters written with it were sent to acquaintances and friends. Mr. James Densmore, then of Meadville, Pa., who received one of these letters, was so impressed by it that by return mail he asked to become interested in the enterprise. In reply, he was offered a quarter interest if he would pay all the expenses up to date. He accepted the offer, and when he saw the machine, in March, 1868, he pronounced it good for nothing except to show that the idea was feasible. His faith, however, was unshaken, and

Soule and Glidden having dropped out of the enterprise, he assumed all expenses and urged Sholes to remedy certain defects which he pointed out. No less than 25 or 30 experimental typewriters were made, each one a little better than its predecessor. As fast as finished they were placed in the hands of differ-

THE TYPEWRITER; ITS GROWTH AND USES.

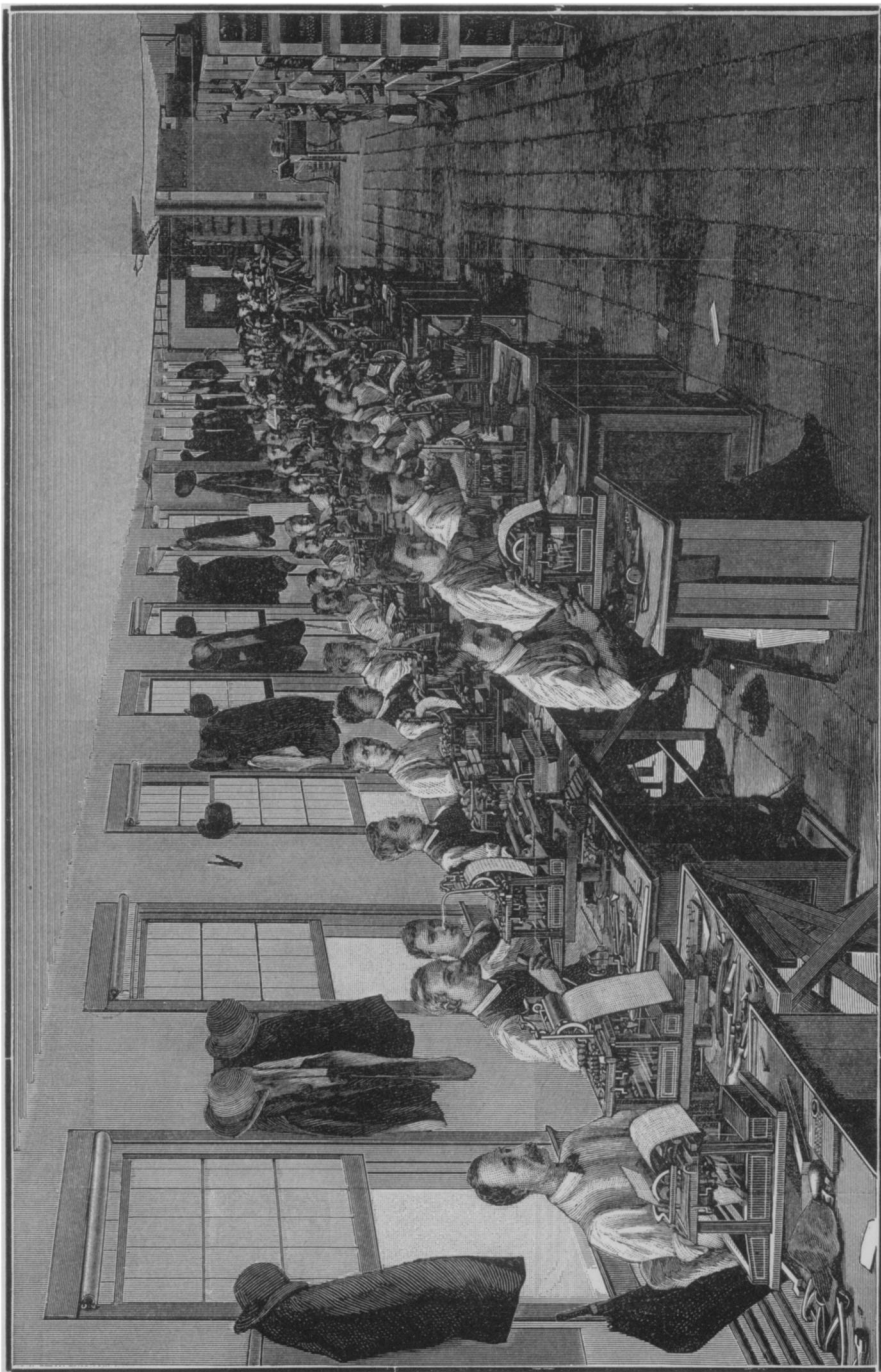
ent experts, among others James O. Clephane, a stenographer of Washington, D. C., who by hard use destroyed one after another till the patience of Sholes was exhausted. But Densmore insisted that as the machine must be made so that anybody could use it, such tests were a blessing and not a misfortune. Step by step, screw by screw, the invention grew, until in 1873 it was taken to the great gun shops of E. Remington & Sons, of Ilion, N. Y. There, thanks to the good will and judgment of Philo Remington, it received the attention of a number of skilled machinists, who put into practicable shape much that had been merely suggested by the original inventors. When the machine finally appeared upon the market, it was first offered chiefly to professional men—lawyers, clergymen, newspaper men; and apparently its greatest field of usefulness, the offices of mercantile houses, was almost overlooked. It was not until 1882 that its real possibilities became apparent; until then the machine had been, so to speak, on trial. There had been some defects that interfered with its rapid growth and favor. From 1882 until the present time, its history is one long record of successes, abroad as well as at home, and the present success of the machine is due perhaps not so much to the fading away of prejudices as to actual improvements in the machine itself. The typewriter of 1874 and that of to-day are two very different machines. The earliest typewriters printed only capital letters; they were more or less liable to get out of order; in a word, there have been wonderful improvements, or the machine would not stand where it does to-day.

The construction and operation of the Remington typewriter are so well known that it is not necessary to go into any detailed description. The type arms or bars, each bearing a lower-case letter and its corresponding capital, are thrown up by piano-forte lever action. Each impression causes the frame carrying the rollers which hold the paper sheet to move one space. The types are of tempered steel and are practically indestructible. The principle is clearly shown in the cut on preceding page. The perfection of its mechanical construction is attested by the immense amount of daily work which the machine does without strain, and by the fact that experts can work the keys so fast as to give clear impressions of a letter at the rate of 13 to a second. Among the improvements of recent years have been the introduction of capital and lower case letters in the same machine without increasing the number of keys,—a radical and vast improvement—the strengthening of the machine, the addition of some parts, the elimination of others. The noise made by the old machine has been greatly lessened, and its liability to get out of order reduced.

The great factory at Ilion, built up by the Remingtons for making guns, is now employed in making typewriters, which find their way into public use through the houses of Wyckoff, Seamans & Benedict in the principal cities of the world. In the old days the sword was forged into the ploughshare; in our day the gun has given way to the typewriter. Perfect as is the present Remington typewriter, however, its owners are by no means ready to rest upon their laurels. In one corner of the great shops at Ilion is an expert to whom are referred the thousands of suggestions concerning the typewriter which are considered worth submitting to him. Of the ten thousand suggestions that come into the main offices from all parts of the world during the year, perhaps one thousand may be worth listening to; of these, perhaps one hundred may be worth serious consideration, and of this hundred perhaps ten may result in actual improvements, which are gladly accepted, no matter how minute they may be. Most of the changes and improvements effected during the last ten years have been suggested by workmen in the employ of the Remingtons, or of the firm of Wyckoff, Seamans & Benedict. The firm owns or controls a large number of patents upon various devices used in the machine, and as the Remington spreads to every part of the globe, it is not unlikely that this stream of suggestions will continue to grow.

The most elaborate typewriter ever constructed was that made a few months ago for little Josef Hofmann, the boy pianist. It was a Christmas present from Mr. Abbey, his manager. Every part of the machine had been plated, and a silver plate back of the rubber roll was engraved: "Henry E. Abbey to Josef Hofmann, Christmas, 1887." On the alligator-leather case was a large silver monogram of the boy's initials. The first day that the lad got his typewriter he had to be driven back to the piano. After less than two hours' practice, he wrote letters in several languages to friends in different parts of the world, who might not yet know what a typewriter is.

The most remarkable achievement of the typewriter, the chief reason of its success and popularity, has, of course, been the saving of time effected in business offices. This has now become so well known as to scarcely need argument, and explains the marvelous increase in the sale of the Remington typewriters,

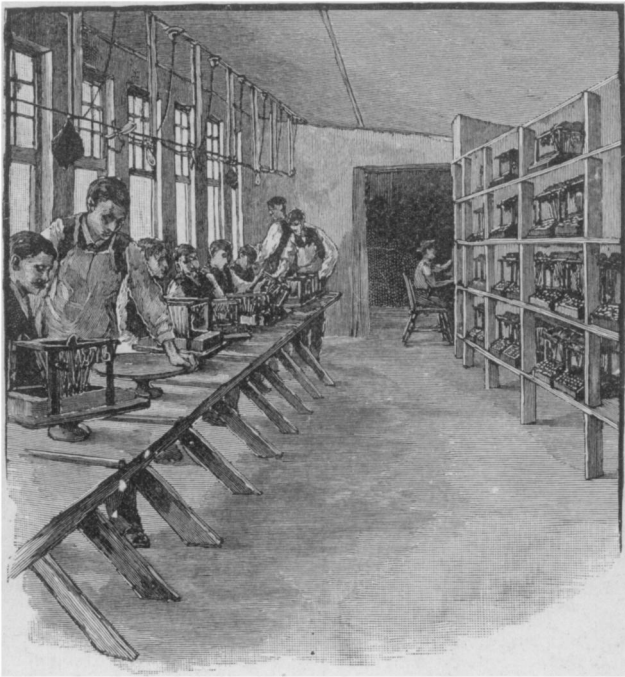


CORNER OF THE ALIGNING ROOM.

THE TYPEWRITER; ITS GROWTH AND USES.

from 1,400, in 1882, to 14,000, in 1887. According to innumerable tests, and to the experience of nine out of ten of our active business houses, the typewriter, as compared to the pen, saves forty minutes an hour, or, to carry out the calculation, five hours and twenty minutes in a business day. In a country like ours, where time means money, it is very easy to estimate how many times the typewriter must pay for itself every year in a busy office. Last summer, in England, Miss Emiline S. Owen, who went over to show Englishmen what could be done with the Remington type-writer, wrote for three minutes at a speed of ninety-nine words a minute, the same matter having been previously written out in longhand by Mr. Thomas Allen Reed, one of the most rapid long-hand writers in the world, at the unprecedented rate of sixty-five words per minute, the best that he could do.

Mr. E. D. Easton, one of the leading legal stenographers of Washington, in his summary of what the typewriter has done for him, says that in the Guiteau case two operators and machines answered for getting up the copy, one each for an as-



A CORNER OF THE ADJUSTING-ROOM.

sociate reporter and himself. Something like 21,000 folios were transcribed at a saving over the old method of about four cents per folio, or \$840 in three months. In the Star Route cases, which lasted about a year, there were in the neighborhood of 70,000 folios written. The two machines and operators saved about three thousand dollars. In a recorded test made in New York some time ago, Miss M. E. Orr wrote an article containing 384 words from dictation, in the presence of witnesses, in four minutes and twenty-nine seconds, without error. The average was 85 words per minute. From familiar matter Mr. Warren Callahan, of Louisville, Mr. F. E. McGurkin, of Salt Lake City, Mrs. Saunders, of Brooklyn, and others have written at the rate of more than 100 words per minute.

In the lawyer's office the typewriter has made possible an amount of work which would have been thought fabulous ten or fifteen years ago. Without exag-

THE TYPEWRITER; ITS GROWTH AND USES.

generation, it may be said that, thanks to the process by which six or more copies are made at once upon the typewriter, one clerk can do with the machine in a day what would require ten clerks working with the pen, and then the pen work would not be so accurate or so neat. In journalism we find that editors by the score have learned to use the typewriter so as to do infinitely more work with smaller expenditure of time or labor, as compared to pen writing, and in one newspaper office in this city typewriter editorial articles are insisted upon as essential to the correct interpretation of the writer's copy. Clergymen write their sermons, authors write their books, and editors hurl the thunders of the press with the typewriter.

It is safe to say that with the typewriter will disappear all the extraordinary blunders due to blind handwriting in the hands of equally blind compositors, and had the typewriter been in existence a generation ago, we should not have had some of the historic anecdotes of Horace Greeley and other famous newspaper men whose writing defied all experts. For instance, Greeley would never have written the quotation in the course of an important political article, "'Tis true, 'tis pity, pity 'tis 'tis true,'" so that the compositor made it: "'Tis two, 'tis fifty, 'tis fifty-two." The temperance editor who wrote that "whiskey drinking is folly," and found it printed: "whiskey drinking is jolly," would not have had to fly from his constituency.

There is also another field from which the typewriter has eliminated blunders. Some years ago a business firm was ruined by the misreading of an order to sell stock; owing to blind handwriting, the order was construed sell such and such stocks "quickly," instead of "quietly," as it should have been. To-day, such a blunder would not occur, thanks to the typewriter.

The aspiring author has his chances vastly improved by being able to present his article or book to the publisher in readable shape. The editor who has used up patience and eyesight upon thousands of illegible manuscripts, cannot be blamed for reading the articles that come to him in typewriting, and guessing more or less carefully at what the others may contain. Some years ago a magazine article in manuscript was passed around an office in order that the title might be deciphered. The first expert made it: "A Blight in Grain;" the second one: "A Flight in Spain;" the third: "A Night in Pain." It was referred back to the author, who printed it out: "A Fight in Vain."

In every large down-town building in New York there are now employed dozens and, in some cases, hundreds of women. One excellent feature of this new profession for women is that it pays according to the skill and education of the person who adopts it. The rewards of teaching are often not in proportion to the knowledge of the teacher. Any bright girl in from three to six months may obtain sufficient facility with the typewriter to make herself valuable in an office, and after that everything she does adds so much practice. The salaries of good typewriters average in New York from \$15 to \$20 a week, the rank and file earning from \$10 to \$12. It is a very poor sort of typewriter who, after six or eight months' experience, cannot make as much at this work as at school-teaching.

So tremendous are the advantages to modern business afforded by the typewriter, that a maxim has come into use to the effect that there must be something wrong about the business office in which no typewriter is found.

As a matter of fact, the speed readily attained by operators is such that many business men prefer to dictate their letters directly to the typewriter operator rather than to a stenographer. The Associated Press, which uses at least one hundred machines in its offices, employs operators who listen to the telegraphic message as it is clicked out by the sounder, and write it out upon the typewriter; the receiver can write much faster than the man at the other end of the wire can send. From ten to thirty copies at a time are made upon thin paper for newspaper work.

Its importance as a very valuable and constantly increasing means of making a livelihood and doing useful work at the same time is acquiring recognition. At many of our public institutions, such as the Cooper Institute and the Young Women's Christian Association, there are free classes in typewriting. There are over 200 machines in use in the several business colleges and shorthand schools, for purposes of instruction, in New York City. Typewriting is now taught in some of the public schools, and it is only a question of time when it will be in all. It has been found that, with its aid, it is much easier to teach spelling, punctuation and the proper use of capitals.

Deaf and dumb people take naturally to the typewriter. There is one boy, Thomas M. Caton, who uses the Remington with rapidity and accuracy, who is not only deaf and dumb but also blind. It is his delight to write off for visitors: "This is a specimen of work done upon the typewriter by one who never saw a

THE TYPEWRITER ; ITS GROWTH AND USES.

typewriter." After a sentence has been spelled out to him by touch, he starts off at astonishing speed to write it out, and makes but very few errors.

So dependent have the merchants become upon the typewriter that in no less than ten of New York's hotels typewriter operators find a profitable business in doing the correspondence of the guests. Those who once adopt the typewriter never go back to the pen.

It might be expected that in conservative Europe the typewriter would not be accepted without a protest, and it is therefore somewhat surprising to find that, on the contrary, some of the very countries from which the least was hoped for have taken to the perfected writing machine with enthusiasm. For instance, the Frenchmen thank America for the sewing machine, the telegraph, the telephone and the typewriter. In England, even Ruskin, the high priest of people who despise machinery of every kind and hate the very word "progress," makes an exception in favor of the typewriter and condescends to like it. Charles Reade's trenchant and characteristic praise of the typewriter has become almost famous. He says : " I advise parents to have their boys and girls taught shorthand writing and typewriting. The shorthand writer who can typewrite his notes, will be safer from poverty than a great Greek scholar." The Bishop of York, Sir Andrew Clarke, physician to the Prince of Wales, and many other eminent Englishmen, are earnest champions of the Remington typewriter.

To give some notion of the various countries in which the typewriter is used, here are some specimen lines written upon the Remington typewriters made for the regular trade abroad :

SPANISH.

Esto es una muestra del
trabajo en Español.

ITALIAN.

Questo é una mostra del
lavoro in Italiano.

FRENCH.

Ceci est un échantillon
de l'écriture en Français.

GERMAN.

Dieses ist ein muster von
deutscher Schrift.

The following are some of the languages to which the Remington typewriter has been adapted : English, French, German, Bohemian, Roumanian, Bulgarian, Swedish, Danish, Portuguese, Italian, Spanish, Polish and Russian.

One language for which no typewriter has been as yet constructed is the Chinese, as its 30,000 characters would necessitate making an apparatus too large and complicated for use.